

REMARKS

After entry of the subject amendment, claims 1-37, 39-55, and 57-60 remain pending in the application with claims 1, 33, and 50 in independent form. More specifically, claims 33, 39-43, and 50 have been amended, claims 38 and 56 have been canceled, and claims 57-60 have been added in this amendment. There is full support in the specification for the amendments to claims 33, 39-43, and 50 and for added claims 57-60. Accordingly, no new matter has been added.

Claim 56 has been canceled as indicated above. Hence, the 35 U.S.C. § 112, second paragraph, rejection of this claim is moot.

Claims 1-56 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Singer et al. (United States Patent No. 5,989,642).

Independent claims 33 and 50 have been amended to more specifically emphasize that the first block of the water-based copolymer is the reaction product of at least one ethylenically unsaturated monomer and at least one vinylaromatic hydrocarbon monomer. In making these amendments, the Applicants have aligned the scope of the method claims with the scope of independent claim 1, which remains unamended. As such, all three independent claims remaining in the application call for a specifically ‘tailored’ polymeric architecture that is able to meet certain needs depending on the particular waterborne system (*see page 3, lines 10-12 of the specification of the subject application*).

The specifically ‘tailored’ polymeric architecture of the subject invention (part of which is the reaction product of at least one ethylenically unsaturated monomer and at least one vinylaromatic hydrocarbon monomer of the first block) includes a first block, which is preferably a hydrophilic block, and a second block, which is preferably a hydrophobic block. The first block of the water-based copolymer leads to the solubility of the copolymer in water. More specifically, the at least one ethylenically unsaturated monomer in the first block:

ensures the solubility of the copolymer in water;

establishes an ideal minimum film forming temperature, MFFT, for the water-based

copolymer and for the cured film of the water-based coating composition; and

minimizes the photo-sensitivity of the water-based coating composition and of the cured film formed of the water-based coating composition (*see page 9, lines 1-13 of the specification of the subject application*).

Furthermore, the at least one vinylaromatic hydrocarbon monomer in the first block primarily functions to control subsequent polymerization of the monomers that make up the second block of the water-based copolymer (*see page 16, lines 19-22 of the specification of the subject application*). It is necessary that the at least one vinylaromatic hydrocarbon monomer be reacted with the at least one ethylenically unsaturated monomer such that it is a component of the first block that can establish an adequate basis for subsequent polymerization of the components of the second block.

In view of these clarifying amendments, the Applicants, relying primarily on *In re Sang Su Lee*¹, respectfully traverse the Examiner's § 103(a) rejection. The Applicants contend that, in making her § 103(a) rejection, the Examiner has failed to fully appreciate the significance of the Applicants' specifically 'tailored' polymeric architecture for the water-based copolymer.

In her rejection under § 103(a), the Examiner correctly concedes that Singer et al. does not disclose the particular requirements for the first block of the water-based copolymer. That is, the Examiner correctly concedes that Singer et al. does not disclose a first block that comprises the reaction product of at least one ethylenically unsaturated monomer and at least one vinylaromatic hydrocarbon monomer. The Examiner also recognizes that the subject invention is 'different' because it requires a water-based coating composition. These are not the only differences between the claimed invention and Singer et al. As one example that these are not the only differences, Singer et al. **also does not** disclose, teach, or otherwise suggest carbonate-modified glycidyl acrylate and carbonate-modified glycidyl methacrylate as specific ethylenically unsaturated monomers for the second block of the water-based copolymer (*see, for example, dependent claims 5, 27, 46, and 60*). This is just one example of another difference that

¹ 277 F.3d 1338. *In re Sang Su Lee* was decided by the United States Court of Appeals for the Federal Circuit (CAFC) on January 18, 2002.

the Examiner has failed to appreciate.

Furthermore, in her § 103(a) rejection, the Examiner, *without providing any relevant objective evidence*, merely concludes that it would have been obvious to formulate the coating composition disclosed in Singer et al., which is generally not water-based, with the select at least one ethylenically unsaturated monomer and the select at least one vinylaromatic hydrocarbon monomer of the subject invention. Apparently, the Examiner makes this broad determination “because *any combination* of ethylenically unsaturated monomers for producing a block copolymer...can be made with the same resulting expectation, and since the various ways of the selected ethylenically unsaturated monomers are depending on the desired characteristics of the coating compositions” (emphasis added). This is overly conclusory and is clearly not the case as is especially recognized by those skilled in the art when formulating to achieve a certain ‘tailored’ polymeric architecture that will be suitable in a waterborne system. As described below, the Examiner cannot simply conclude what does and does not impart patentability to the claims without the support of objective evidence.

In conjunction with the above, it is respectfully submitted that the Examiner has not established the requisite *prima facie* case of obviousness.² To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the reference itself or in the knowledge generally available to one of ordinary skill in the art, to modify the reference. Second, there must be a reasonable expectation of success. Finally, the prior art reference must teach or suggest all the claim limitations. MPEP 2142. The teaching or suggestion to make the claim combination and the reasonable expectation of success must both be found in the prior art and not based on applicant's disclosure.³

Under the first criteria of the *prima facie* case of obviousness, the recently decided case of *In re Sang Su Lee* clearly defines how suggestion and motivation are determined,

² The legal concept of *prima facie* obviousness allocates who has the burden of going forward with production of evidence. The examiner bears the initial burden of factually supporting any *prima facie* conclusion of obviousness. If the examiner does not produce a *prima facie* case, the applicant is under no obligation to submit evidence of nonobviousness. MPEP 2142

³ *In re Vaeck*, 947 F.2d 488, 20 U.S.P.Q. 2d 1438 (Fed. Cir. 1991).

and how the knowledge generally available to one skilled in the art is found. The CAFC in *In re Sang Su Lee* reviewed a decision from the Board of Patent Appeals and Interferences of the United States Patent and Trademark Office. Both the Examiner and the Board agreed that Sang Su Lee's invention "would have been obvious to one of ordinary skill in the art since the demonstration mode is just a programmable feature which can be used in many different device[s] for providing automatic introduction by adding the proper programming software," and that "another motivation would be that the automatic demonstration mode is user friendly and it functions as a tutorial." *Id.* at 1341. However, in this case, the CAFC made it abundantly clear that the Board's and the Examiner's conclusory statements did not adequately address the issue of motivation to modify a reference or motivation to combine references. The factual question of motivation is material to patentability, and could not be resolved on subjective belief and unknown authority. *Id.* at 1343. It is improper, in determining whether a person of ordinary skill would have been led to this combination of references, simply to "[use] that which the inventor taught against its teacher." *W.L. Gore v. Garlock, Inc.*, 721 F.2d 1540, 1553, 220 U.S.P.Q. 330, 312-13 (Fed. Cir. 1983). The court in *In re Sang Su Lee* went on to state that the "common knowledge and common sense" on which the Board relied in rejecting Lee's application are not the specialized knowledge and expertise contemplated by the Administrative Procedure Act. Conclusory statements such as those here provided do not fulfill the agency's obligation. *In re Sang Su Lee*, 277 F.3d at 1342.

The CAFC also explained in *Zirco*, 258 F.3d at 1385, 59 U.S.P.Q. 2d at 1697, that "deficiencies of the cited references cannot be remedied by the board's general conclusions about what is 'basic knowledge' or 'common sense'". The Board, as well as the Examiner, must explain the reasons one of ordinary skill in the art would have been motivated to select the references and to combine them (or to modify a singular reference) to render the claimed invention obvious. *In re Rouffet*, 149 F.3d 1350, 1359, 47 U.S.P.Q. 2d 1453, 1459 (Fed. Cir. 1998).

In her Office Action, as objective evidence, the Examiner relies on the fact that Singer et al. discloses certain vinyl aromatic compounds as polymerizable components that

can be used in lieu of the “acrylic materials” (*see column 5, line 46 of Singer et al. which was cited by the Examiner*). The mere disclosure of certain vinyl aromatic compounds in Singer et al. does not arise to a disclosure, teaching, or suggestion of the specifically ‘tailored’ polymeric architecture claimed in the subject invention. More specifically, this particular disclosure in Singer et al. does not arise to a disclosure, teaching, or suggestion of at least one vinylaromatic hydrocarbon monomer, such as diphenylethylene, that has been reacted, i.e., polymerized, with at least one ethylenically unsaturated monomer, such as acrylic acid and/or methyl methacrylate, to form a first block of a water-based copolymer, wherein the at least one vinylaromatic hydrocarbon monomer in the first block provides a basis for additional polymerization of a plurality of monomers that introduce carbonate, and ultimately the carbamate, functionality.

The Applicant holds that this cited portion of Singer et al. is irrelevant to the claim limitations of independent claims 1, 33, and 50. Simply stated, Singer et al. does not provide the requisite objective evidence that supports the Examiner’s conclusion that the specifically ‘tailored’ polymeric architecture that is necessary for the claimed copolymer to work in the water-based coating composition is obvious. Instead, there is no adequate basis in the prior art for such a conclusion.

In sum, the Examiner’s (1) conclusory statement and (2) citation of the particular portion of Singer et al. does not satisfy the requisite burden of suggestion and motivation or knowledge generally available to one skilled in the art for modifying the reference. The Examiner has not, therefore, satisfied her *prima facie* case of obviousness. As such, independent claims 1, 33, and 50 are allowable and the remaining claims depend either directly or indirectly from the non-obvious features of these claims such that the dependent claims are also allowable.

It is respectfully submitted that the Application is now presented in condition for allowance, which allowance is respectfully solicited.

No fees are believed to be due. However, if necessary, the Commissioner is authorized to charge Deposit Account No. 08-2789 for any additional fees or to credit the account for any overpayment.

Respectfully submitted,

HOWARD & HOWARD ATTORNEYS, P.C.

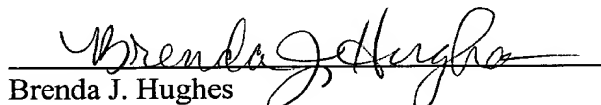
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CERTIFICATE OF MAILING

I hereby certify that the attached **Amendment** is being deposited with the United States Postal Service as first class mail, postage prepaid, in an envelope addressed to **Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450**, on **July 30, 2003**.


Brenda J. Hughes

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